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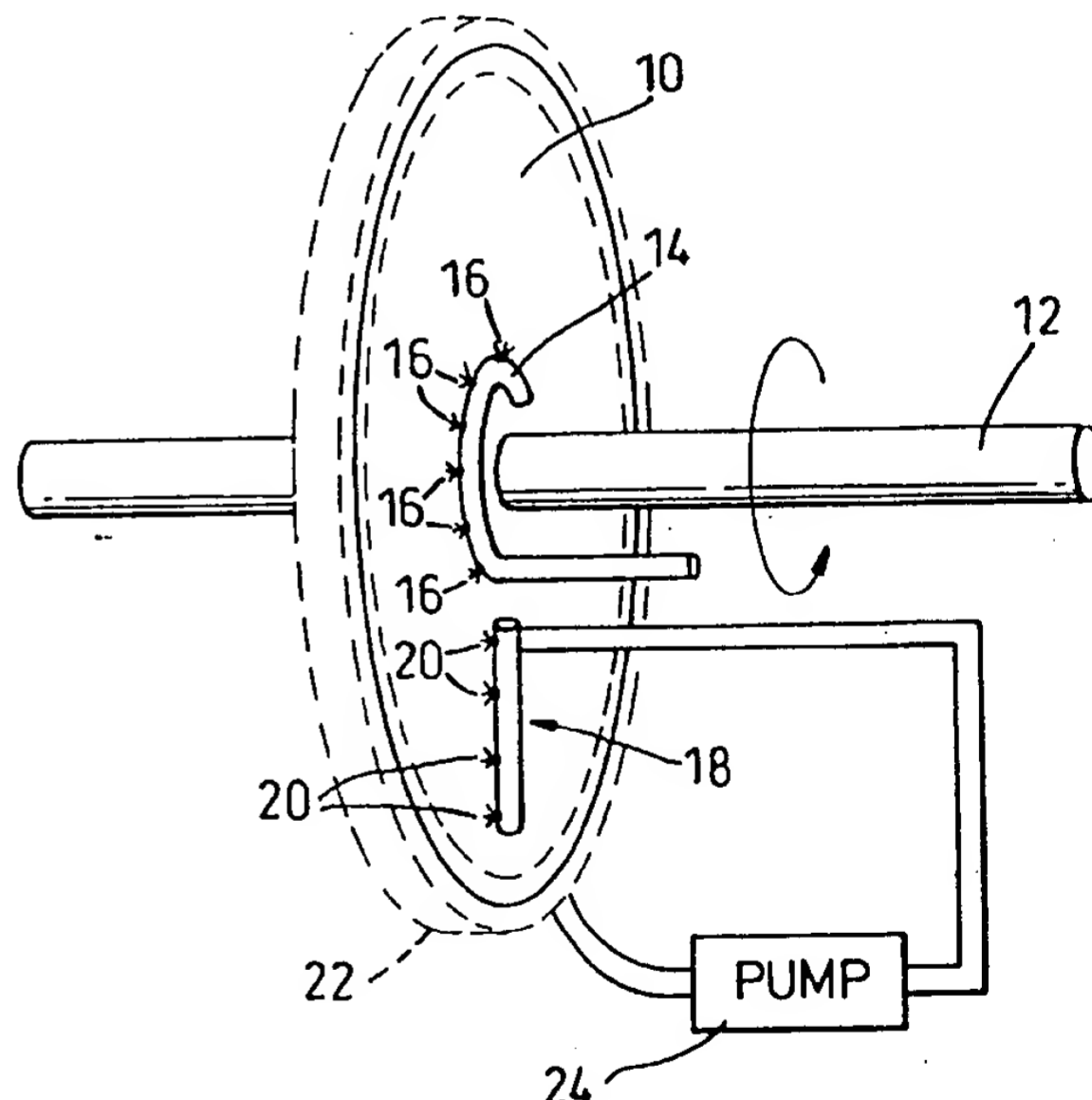
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : B01D 1/22, F25B 37/00		A1	(11) International Publication Number: WO 98/47592
			(43) International Publication Date: 29 October 1998 (29.10.98)
(21) International Application Number: PCT/GB98/00946 (22) International Filing Date: 20 April 1998 (20.04.98) (30) Priority Data: 9707948.7 19 April 1997 (19.04.97) GB (71) Applicant (for all designated States except US): INTEROTEX LIMITED [GB/GB]; Block C-G, 100 Thames Valley Park Drive, Reading, Berkshire RG6 1PT (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): WINNINGTON, Terence, Leslie [GB/GB]; Hillside House, Jacobs Knoll, Burleigh, Stroud, Gloucestershire GL5 2PR (GB). LORTON, Robert [GB/GB]; 37 Hayward Road, Charlton Kings, Cheltenham, Gloucestershire GL52 6RQ (GB). (74) Agents: NEWELL, William, Joseph et al.; Wynne-Jones, Laine and James, 22 Rodney Road, Cheltenham, Gloucestershire GL50 1JJ (GB).		(81) Designated States: BR, CN, JP, KR, RU, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: ROTARY HEAT AND/OR MASS TRANSFER ARRANGEMENTS

(57) Abstract

A rotary heat and/or mass transfer arrangement in which a liquid component undergoes heat and/or mass transfer with a vapour component comprises a rotor (10) on which a layer of fluid is applied by nozzles (16). The flow across the rotor is actively disturbed by means of a radial row of nozzles (20), to enhance the heat and/or mass transfer coefficients.



Claims

1. A rotary heat and/or mass transfer arrangement, comprising:-

a rotor means for being rotated in use;

5 means for delivering a supply of liquid to a radially inner region of a surface of said rotor to provide a fluid film which flows over said surface accompanied by heat and/or mass transfer to or from said liquid, and

10 means for disturbing said flow, thereby to enhance at least one of said heat and mass transfer.

2. A rotary heat and/or mass transfer arrangement according to Claim 1, wherein said delivering means comprises a plurality of delivery nozzle means disposed around the rotary axis of said rotor to provide in use a
15 film of substantially uniform thickness.

3. A rotary heat and/or mass transfer arrangement according to Claim 2, wherein said delivery means comprises a common pipe or conduit for supplying fluid to each of said nozzle means.

20 4. A rotary heat and/or mass transfer arrangement according to any preceding Claim, wherein said disturbing means comprises at least one disturbing nozzle means disposed radially outwardly of said delivery nozzle means.

25 5. A rotary heat and/or mass transfer arrangement according to Claim 4, including means for collecting fluid passing from said rotor means and for supplying it to said disturbing nozzle means.

6. A rotary heat and/or mass transfer arrangement according to any of Claims 1 to 3, wherein said means for disturbing comprise said delivery nozzle means arranged such that in use the impingement of the jets from said nozzle
5 means causes non-laminar wave generation or wave interaction.

7. A rotary heat pump incorporating one or more rotary heat and/or mass transfer arrangements according to any of Claims 1 to 6.

10 8. A method of enhancing the heat or mass transfer coefficient in a rotary system comprising a rotor over which liquid is required to flow in use accompanied by heat and/or mass transfer to or from said liquid, said method comprising disturbing said liquid to provide a mixed or stirred flow.

15 9. A rotary heat and/or mass transfer arrangement comprising:-

a rotor for being rotated in use;

means for delivering a supply of liquid to a radially inner region of a surface of said rotor to flow in use over
20 said surface accompanied by heat and/or mass transfer to or from said liquid,

wherein said means for delivering comprises a plurality of nozzle means disposed about the rotary axis of said rotor, adapted to provide a mixed or stirred flow of liquid
25 across said rotor.

10. A two phase, liquid/vapour system in which in use a liquid component undergoes mass and heat transfer with a vapour component, said system comprising:-

a rotor means for being rotated in use;

means for delivering a supply of liquid to a radially
inner region of a surface of said rotor to provide a fluid
film which flows over said surface accompanied by heat
5 and/or mass transfer to or from said liquid, and

means for disturbing said flow, thereby to enhance at
least one of said heat and mass transfer.